

**Call for application for research scholarships  
for post-graduate international candidates**

**RESEARCH PROJECT N. 65**

<b>Title</b>
WEEE Management optimization
<b>Scientific responsible (name, surname, role)</b>
Silvia Fiore, Associate Professor ( <a href="mailto:silvia.fiore@polito.it">silvia.fiore@polito.it</a> )
<b>Short description of the research activity (max 250 words)</b>
<p>Every year in EU over 500 kg/capita of Electric and Electronic Equipment (EEE) are put on the market and 12 Mt of Waste EEE (WEEE) are generated. WEEE contain 60%-wt of metals (steel, copper and aluminum, although the printed circuit board of a personal computer may enclose up to 1 g of gold and other precious metals) and 15-20%-wt of plastics. Actual WEEE management is focused on metals recycling, while plastics are usually destined to incineration. Inappropriate WEEE management may release hazardous substances (heavy metals, CFCs, persistent organic pollutants). Directive 2012/19/EC established collection targets for 2019: 85%-wt of generated WEEE and 65%-wt of EEE put on the market in the previous three years. At the moment most member states achieved a collection rate around 50%-wt of EEE, thus the optimization of WEEE collection system and the valorization of the generated material flows are urgent issues.</p> <p>The research activity will involve the assessment of: 1) Baseline situation about WEEE collection in EU through the analysis of scientific literature; Italian context will be analyzed with the support of stakeholders (AMIAT, IREN, Hera, etc) (M1-M3). 2) Perspectives for the enhancement of the recovery of metals and other fractions (i.e. polyurethane from end-of-life refrigerators, plastics, glass, etc) with an economic and environmental analysis (through LCA) that will compare actual WEEE management with the improved treatment and market value of the generated products (M4-M8). Full-scale WEEE treatment plants managed by the involved stakeholders will be evaluated and enhanced physic-mechanical treatments will be tested at laboratory-scale.</p>
<b>Specific requirements (experiences, skills)</b>
Preferably Master Degree in Environmental Engineering or Chemical Engineering or Ecological Engineering, possibly with credits on Solid waste management and treatment.
Prefereably Knowledge of LCA methodology and SimaPro software.
<b>Website of the research group (if any)</b>
<b>Keywords (min 3, max 6)</b>
WEEE, recovery, recycling, waste, sustainability, environmental assessment
<b>Research Area (max 1)</b>
Environment, Land, Infrastructure